

ABSTRACT

Provided are novel yeast mutants capable of producing a glycoprotein in which a sugar chain, having a sugar chain structure identical to that of a sugar chain produced from mammalian cells, is attached to an asparagine residue of a protein; and a process for producing the sugar chain and the glycoprotein by a glycoengineering technique using the mutants. The newly-bred auxotrophic triple mutant and auxotrophic quadruple mutant of the present invention can produce a large quantity of high purity neutral sugar chains identical to the high mannose type sugar chains produced from human and other mammalian cells and glycoproteins having the neutral sugar chains. Also, introduction of genes for biosynthesis of a mammalian type sugar chain into the mutants enables efficient production of a mammalian type sugar chain of high-mannose type, hybrid-type, complex-type, etc. or a protein having the mammalian type sugar chain.